BULLETIN OF THE SCIENTIFIC LABORATORIES OF DENISON UNIVERSITY.

Vol. XII. Article IV. With Plate VI. October, 1902.

A DEFORMED CHICK.

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John M. Sontag has said that chicks hatched under a hen are never deformed. Last fall I received a chick, which had been hatched out of barred Plymouth rock eggs, by a barred Plymouth hen.

This chick was deformed and the deformity was pronounced enough to attract attention. At birth the chick was as vigorous as any in the brood; but the deformity was a handicap to the chick and in a few days the struggle with the other normal chicks ended in death by starvation.

To the casual observer one of the chick's legs was much shorter than the other; to the naturalist the leg was not only shorter than usual, but it contained only three toes and two of those were webbed from the proximal end to the nails. It was this peculiar modification which led me to think the chick was worth a careful study.

In the following tables an attempt is made to contrast the normal and abnormal legs; not only as to external morphology but also as to their skeletons.

TABLE A.

Normal Leg	Length	Greatest diameter at middle	Least diameter at middle	Greatest diameter at proximal end	Least diameter at proximal end	Greatest diameter at distal end	Least diameter at distal end	Remarks
Bone 1	20 mm.	2 mm.	2 mm.	3.80 mm.	2.58 mm.	4.505 mm.	3.08 mm.	Curved bone
Bone 2	30 mm.	1.76 mm.	1.76 mm.	5.29 mm.	3 95 mm.	4.83 mm.	3.79 mm.	
Bone 3	16 mm.	2.77 mm.	1.51 mm.	4.82½ mm.	3 33 mm.	5.16 mm.	2.90 mm.	
Abnormal Leg								
Bone 1a	18 mm.	1.66½ mm.	1.66½ mm.	3.35 mm.	2.17 mm.	3.33½ mm.	2.82 mm.	
Bone 2a	17 mm.	1.68 mm.	1.53 mm.	3.73½ mm.	2.95½ mm.	3.17 mm.	2.70½ mm.	
Bone 3a	9 mm.	3.97½ mm.	1.07 mm.	3.93½ mm.	1.68½ mm.	4.93 mm.	1.95 mm.	The bone is V-shaped, open at the distal end

TABLE B.

Normal Leg	Bone	Length	Remarks
Toe 1	1	4.48 mm.	
	2	2.86 mm.	
	3	2.43 mm.	
	4	2.58½ mm.	
	N	2.92 mm.	
Toe 2	1	6.2 mm.	
	2	4.76½ mm.	
	3	4.72 mm.	
	N	5.30 mm.	
Toe 3	1	6.46 mm.	
	2	4.38 mm.	
	3		
	N	4.11 mm.	
Toe 4	1	2.38½ mm.	
	2	4.57 mm.	
	3		
	N	3.39 mm.	

TABLE C.

Abnormal Leg	Bone	Length	Remarks
Toe 1	1	5.15 mm.	
	2	4.15 mm.	
	3	4.14 mm.	
	4		
	N	5.16½ mm.	
Toe 2	1	3.85 mm.	
	2	2.65 mm.	
	3	2.96 mm.	
	N	4.40 mm.	
Toe 3	1	3.40 mm	Cartilage
	2	4.87 mm.	
	3		
	N	3.65 mm.	
Toe 4	1		Missing
	2		Missing
	3		Missing
	N		Missing

The structural differences between these legs are contrasted in figs. 1, 2, 3, 4, 5 and 6. The abnormal leg has only three toes and no trace of a fourth. The normal leg has four toes.

The table given above renders a detailed description unnecessary. I must mention however that in the abnormal leg the first and second bones of the third toe have fused, and that the femur of the abnormal leg contains a conspicous spine for the insertions of muscles and that the nails of the abnormal leg are relatively larger than those of the other leg.

The resemblance of this deformed leg to the normal leg of the auk is both astonishing and instructive. The following table diplays that comparision.

THE DIVING BIRDS.—THE AUKS.	DEFORMED CHICK.
Characteristics.	*Characteristics.*
1. Backward position of their legs.	1. Backward position of the deformed leg.
2. The toes are either webbed or lobed.	2. The toes of the deformed leg are webbed.
3. The absence of one toe.	3. The absence of one toe.
4. The tibia relatively short.	4. The tibia relatively short, compared with the tibia of the normal leg.
5. The toes have claw-like nails.	5. Have claw-like nails.

In drawing inferences concerning deformities one must not jump to hasty conclusions. That this deformed leg resembles the normal legs of the diving birds there can be no doubt and to the writer this seems to be an unilateral reversion. Even though this conclusion should not stand the test of time, it is thought that the above description of the facts in the case will be of value to students of variations.

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EXPLANATION OF PLATE.

Fig. 1. Deformed Chick—Lateral View.
Fig. 2. Deformed Chick—Dorsal View.
Fig. 3. Deformed Leg.
Fig. 4. Normal Leg.
In 3 and 4 the dotted lines indicate the position of the leg bones.
Fig. 5. Skeleton of the Deformed Leg.
1 a=Femur, 2 a=Tibia, 3 a=Cannon Bone.
1 to 3=phalanges. N=Nail.
Fig. 6. Skeleton of the Normal Leg.
Bones are numbered as in fig. 5.
Figs. 3 to 6 were drawn with a camera.

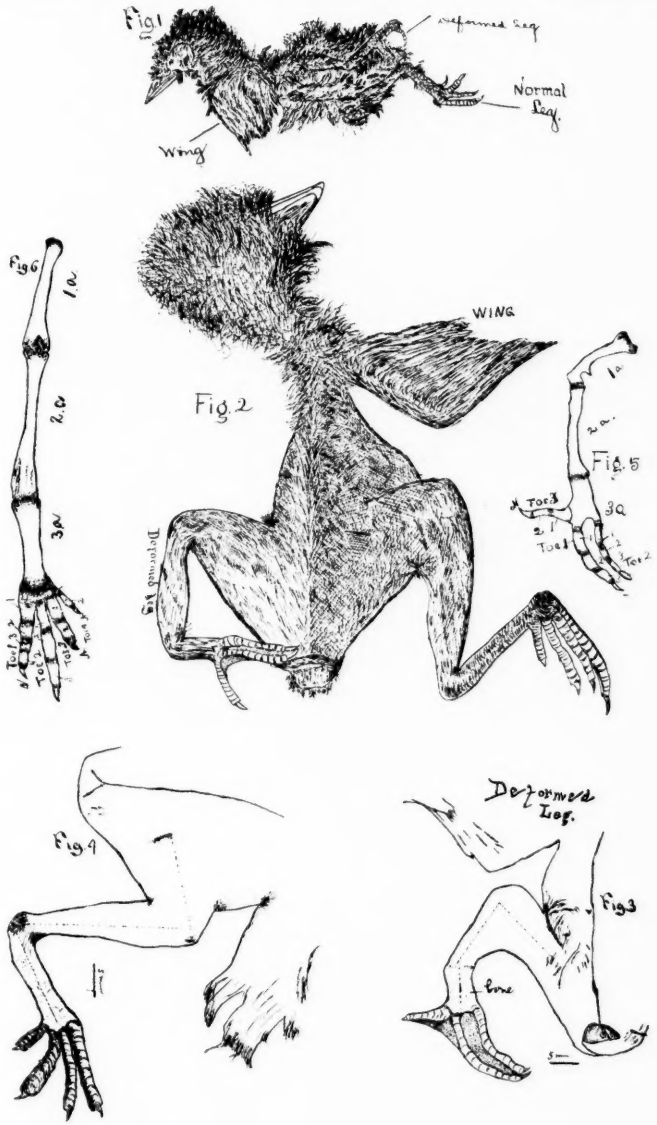
Fig 1
Deformed Leg
Normal Leg
Wing
Fig 6
1a.
2a.
3a.
Fig. 2
WING
Deformed leg
Fig. 5
Tor 3
Toe 1
Tor 2
Fig 4
Deformed Leg.
Fig 3
Line

Herrick, C. Judson.

A Note on the Significance of the Size of the Nerve Fibers in Fishes. Bulletin Scientific Laboratories of Denison University, Vol. XII, Art. V, pp. 33–38, 1902.

Nerve Fibers in Fishes. A Note on the Significance of the Size of. Bulletin Scientific Laboratories of Denison University, Vol. XII, Art. V, pp. 33–38, 1902.

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